
2.0 Certifications of Technical Methods and Planning Assumptions

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The Certification of Technical Assumptions and Planning Assumptions Template provides certification by the Intergovernmental Partnership (IGP) – established to develop the Transport 2020 project and comprised of the City of Madison, Dane County, and the Wisconsin Department of Transportation – that the technical approaches and assumptions used for purposes of this submittal were in accordance with established New Starts principles, as well as other FTA guidance and best professional practices. Dates also are provided in this template for the collection of data which support the travel forecasts.

The City of Madison will be undertaking a onboard survey to obtain current data on travel patterns and behavior. This survey will be implemented in February and March of 2008 with results compiled in April and May of 2008. The results will then be used to recalibrate the model.

As explained in more detail in Section 3.0, ridership and user benefits forecast using the current model are expected to be somewhat understated. It is expected that the new survey results will further enhance both the accuracy of the model as well as user benefits forecast for Transport 2020.

The objective of the survey analysis is to better understand the transit markets currently served. This will help validate the Madison model by better reflecting observed travel behavior by existing bus riders. Key elements of uncertainty in the current model that will be addressed in more detail with the onboard survey include the following:

- The **transferring activity** among current riders:
 - The percentage of riders who have to transfer and the average transfer rate;
 - The bus routes and the boarding/alighting points in the bus system where most of the transferring activity occurs;
 - The extent of transferring activity at each of the four Transfer Points and the Capitol Square;
 - The percentage of riders who have to transfer more than once; and
 - Differences in the transferring patterns among segments of bus riders, differences due to geography, or differences by time of day.

- The patterns of **access and egress** among current bus riders:
 - The percent of riders who drive to and those who walk to bus;
 - The areas in Madison where drive access and walk access are more prevalent;
 - Differences in access and egress mode by purpose, time of day, route, by boarding location, and at each of the Transfer Points; and
 - Patterns of access and egress mode by riders with different socioeconomic characteristics and frequency of riding the bus.
- The origin-destination **trip table** of current bus riders will help us examine the following:
 - A comparison of the shape of the table with the modeled flows;
 - Concentration of transit trips along the Transport 2020 corridor;
 - Average trip lengths and distribution of trip lengths by time of day and route;
 - Mix of transit trips by purpose and directionality by time of day; and
 - The assignment of the bus rider trip table compared against model flows.

Another activity includes the development of a **bus and highway travel time database**. Existing data from bus schedules and travel time data for buses that operate in mixed traffic in Madison will be compiled along with highway travel time data for corresponding highway segments. The analysis of these highway and bus travel times will help:

- Develop a link between bus travel times and highway travel times reflecting base-year conditions in the Madison area;
- Examine differences in travel times and speeds by time of day to assess whether the assumption of free flow speeds during the off-peak periods is realistic;
- Account for the impact of the urban environment on developing relationships between bus and highway speeds and travel times;
- Use on-time performance data from the Metro vehicle locator system to determine if any adjustments need to be made to scheduled bus travel times;
- More accurately represent the peak period and off-peak period travel times for buses in the Madison area; and
- Apply these estimated relationships in the forecast year using future-year input data to assess the bus speeds and travel times in the area.

Ridership and user benefit forecasts will be recalculated following completion of the survey collection and recalibration efforts, with revised results provided to the FTA. As noted above, these revised results may reflect higher benefits for the Transport 2020 project.

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As Mayor of the City of Madison, Dane County Executive, and Secretary of the Wisconsin Department of Transportation, we collectively understand that FTA's Reporting Instructions for Section 5309 New Starts Criteria, dated May 2007, establish common conventions for the development of information on proposed New Starts projects that are crucial to the fair and evenhanded evaluation of projects. These conventions include:

1. The horizon year used for the travel forecasts is 2030.
2. The ridership forecasts are based on a single set of projections and policies consistent with the regional transportation plan and are held constant for the preparation of travel forecasts for the New Starts Baseline and New Starts Build alternatives, including:
 - land use, demographics, socio-economic characteristics, and travel patterns;
 - the highway network, except as modified for changes inherent to the Build alternative (such as the conversion of traffic lanes to transit-only rights-of-way);
 - transit service policies regarding geographic coverage, span of service, and headways, modified where necessary to integrate transit guideways into the bus system;
 - pricing policies (fares, highway tolls, and parking costs); and
 - transit capacity provided given projected transit volumes, productivity standards, and loading standards.
3. The travel models used to prepare the forecasts have been developed and tested with the best available data on current conditions in the urban area, including:
 - Highway speed data collected in the year 2008 in the Transport 2020 corridor;
 - Transit travel-time data collected in 2007 based on published schedules;
 - Home-interview/travel-diary data collected in 2001 and 2002; and
 - Transit on-board survey data collected in 2001 with additional data to be collected in 2008.
4. Except for the impacts of physical changes introduced by the alternatives themselves, the performance of the highway and transit systems is held constant between the New Starts Baseline and New Starts Build alternatives, including:
 - highway congestion levels;
 - transit operating speeds in mixed traffic; and
 - maximum access and egress distances to/from transit services, as well as representations of walking, waiting, and transfer times.
5. Transit-mode-specific constants describing the unmeasurable attributes of individual modes are either the same across all transit line-haul modes or are derived from ridership experience on existing transit modes in the metropolitan area, and have magnitudes that are within acceptable ranges as reviewed and approved by FTA.
6. Service levels in both the New Starts Baseline and New Starts Build alternatives have been adjusted to meet projected ridership levels using consistent vehicle-loading standards.
7. The forecasts of ridership and transportation benefits have been subjected to quality-assurance reviews designed to identify and correct large errors that would threaten the usefulness of the information in project evaluation.
8. The forecast of ridership using park/ride access to an individual transit stop/station does not exceed the capacity of the associated park/ride lot as reported in the current planning and/or environmental documents for the alternatives.

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9. The definitions of the New Starts Baseline and New Starts Build alternatives are up-to-date, include all items known to be part of the proposed scopes, and specifically identify any remaining sources of uncertainty in the scope of the project.
10. The capital cost estimates for the New Starts Baseline and New Starts Build alternatives are up-to-date, are based on unit costs that apply to expected conditions during construction, and specifically identify remaining uncertainties in those unit costs.
11. Estimates of operating and maintenance costs for the New Starts Baseline and New Starts Build alternatives are based on current local experience, are adjusted for differences in vehicle and service characteristics, and for any transit modes new to the system, are consistent with experience in similar settings elsewhere. All cost components are variable, not fixed. Costs vary with changes in service levels.
12. Annualization factors used to convert daily ridership and operating/maintenance costs into yearly totals are consistent with local experience and are the same for the New Starts Baseline and New Starts Build alternatives.
13. The capital cost estimates are presented in 2007 base year dollars as well as YOES\$.
14. The financial plan has been updated with information from the most recent budget cycle.
15. Any financing costs incurred because of the project have been included in the total project cost as required by FTA, regardless of whether the project sponsor is seeking reimbursement of the costs from New Starts funds.
16. The full cost of preliminary engineering and final design has been included in the total project cost as required by FTA.

Therefore, I hereby certify that the City of Madison, Dane County, and the Wisconsin Department of Transportation has followed FTA's *Reporting Instructions for Section 5309 New Starts Criteria* (May 2007) in general, and the above-listed conventions in particular, in the preparation of this submission.

Dane County Executive

Date